

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference CML00596JC	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/US2004/002614	International filing date ( <i>day/month/year</i> ) 30 January 2004 (30.01.2004)	Priority date ( <i>day/month/year</i> ) 31 January 2003 (31.01.2003) ]
International Patent Classification (IPC) or national classification and IPC 7 H04L 27/28, H04K 1/10		
Applicant MOTOROLA, INC.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 6 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44 <i>bis</i> .3(c) and 93 <i>bis</i> .1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44 <i>bis</i> .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report <b>05 August 2005 (05.08.2005)</b>  Authorized officer <p style="text-align: center; font-weight: bold;">Athina Nickitas-Etienne</p>
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

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23 AUG 2004

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To:  
LALITA W. PACE  
1303 EAST ALGONQUIN ROAD  
SCHAUMBURG, IL 60196

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

**19 AUG 2004**

Applicant's or agent's file reference

CML00596JC

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

PCT/US04/02614

International filing date (day/month/year)

30 January 2004 (30.01.2004)

Priority date (day/month/year)

31 January 2003 (31.01.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): H04L 27/28; H04K 1/10 and US Cl.: 375/260; 370/210

Applicant

MOTOROLA, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or, before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US

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*[Signature]*

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/02614

**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/02614

**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)

Claims 1-10 YES

Claims NONE NO

Inventive step (IS)

Claims 1-10 YES

Claims NONE NO

Industrial applicability (IA)

Claims 1-10 YES

Claims NONE NO

**2. Citations and explanations:**

Claims 1-10 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest an OFDM communication system comprised of a transmitter for obtaining a zero amplitude reduced preamble signal by passing a specified synchronization preamble through an ideal low-pass filter to reduce a single component near zero amplitude within a time domain, and generating an OFDM transmit signal by time-multiplexing the obtained zero amplitude reduced preamble signal with transmit data.

Claims 1-10 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/02614

**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

The drawings are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or content thereof: Figures 5 and 9 should be labeled as "PRIOR ART"; the table recited in claims 3, 4 and 9 is not shown in the figures.

Claims 1-10 are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof:

- in line 1 of claims 1-10, "OFDM communication device" should be "OFDM communication system";
- in claim 1, line 2, "a transmitter" should be "the transmitter";
- claim 7 is a substantial duplicate of claim 5/1;
- claim 8 is a substantial duplicate of claim 5/2;
- claim 9 is a substantial duplicate of claims 5/3 and 5/4;
- claim 10 is a substantial duplicate of claim 6/5/1.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/02614

**Box No. VIII    Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claim 9/8 is objected to as lacking clarity under PCT Rule 66.2(a)(v) because of the claim 9 is not fully supported by the description. The description does not disclose the claimed invention in a manner sufficiently clear and complete for the claimed invention to be carried out by a person skilled in the art because: the description does not describe how the OFDM transmitter uses a table and the FFT and zero substitution sections together to form an ideal low-pass filter.

Claims 1-6 and 9 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 1-6 and 9 are indefinite for the following reason(s):

with regard to claims 1-6, claim 1 appears to be a preamble without a transition word (e.g. "comprising") and recited limitations thereby rendering the vague and indefinite;

with regard to claims 3, 4 and 9, it is unclear what is stored in the table, i.e. it is unclear what is meant by "values obtained when input signals pass through said ideal low-pass filter in accordance with the values of the input signals." Furthermore, it is unclear how the table relates to the input and output of the ideal low-pass filter; and

with regard to claim 9/8, it is unclear how the table relates/interfaces with the FFT section and zero substitution section recited in claim 8.